LOGOS 40/42
office practice course

olivetti

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LOGOS 40/42

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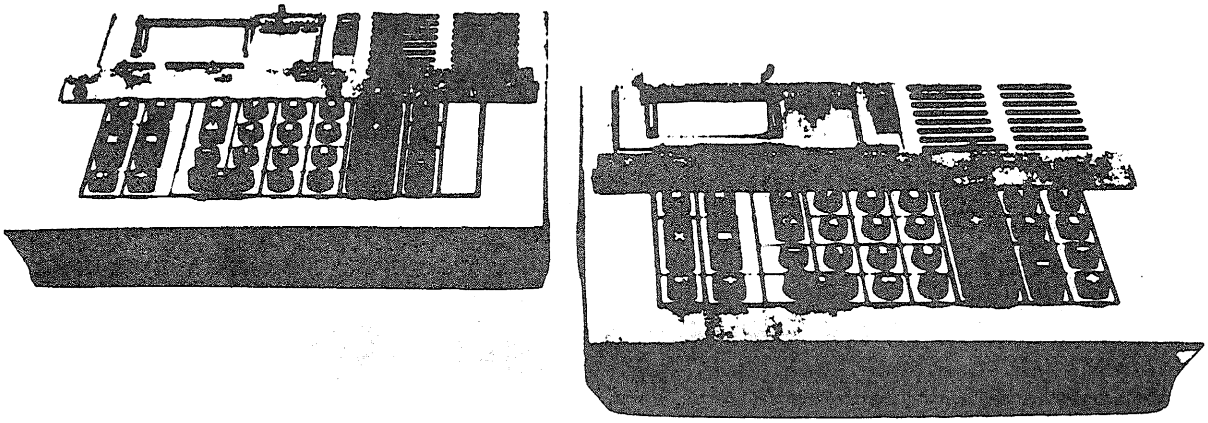
OLIVETTI LOGOS 40/42 OFFICE PRACTICE COURSE



This course has been designed to help you learn the functions and method of operation of the Olivetti Logos 40/42 electronic printing calculators.

You will then be able to use the calculator to solve the most common business applications.

The course is divided into 20 Lessons, each lesson covering a different function. Exercises are provided for you to practice the skills learned.

At the end of each group of 5 lessons there is a short test covering the material in that section. The Final Test, at the end, covers the entire course.

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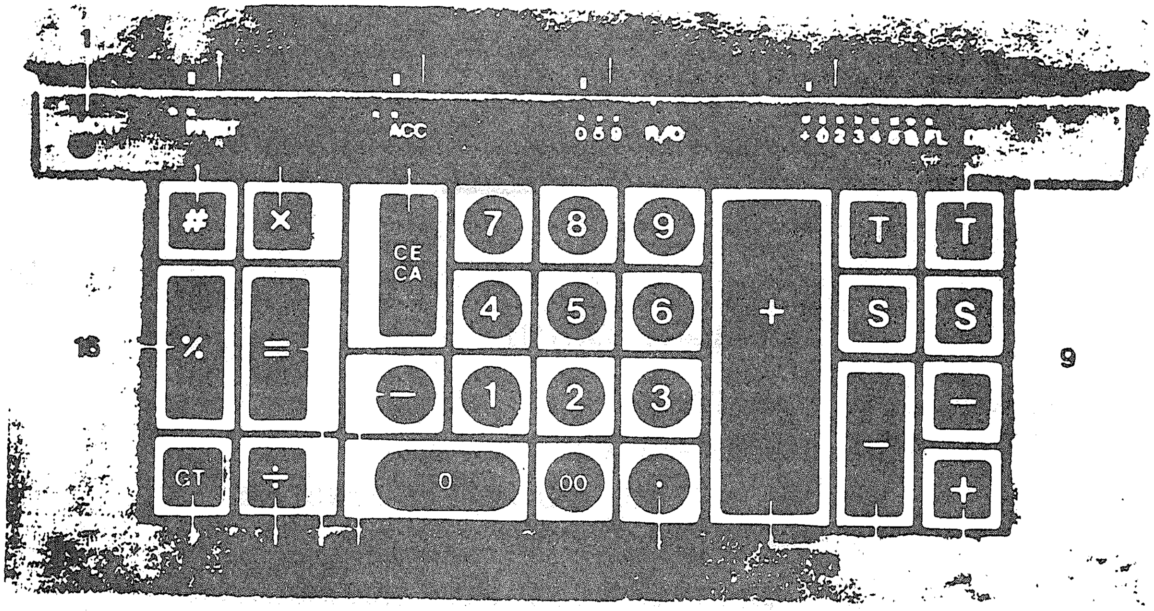
OLIVETTI LOGOS 40/42
KEYBOARD LAYOUT



1. Steady red light indicates calculator is on; flashing light indicates overflow, two keys have been depressed simultaneously, or error.

2. Print Selector - When set at PRINT, all entries and results print; at off position, only results print.

3. Accumulator - When set at ACC, all results accumulate automatically in the Grand Total register. The results which are accumulated are printed with a T+.

4. Round-off Control - This control is used in all operations, the three positions are:

   0 - no round-off.
   5 - the last printed digit is rounded up if the first digit after the decimal control setting is 5 or more.
   9 - the last printed digit is rounded up when decimal digits exist beyond the decimal setting.

5. Decimal Selector - (0, 2-6, +, FL) results print with the number of decimals as indicated by the decimal selector, regardless of the number of decimals entered during calculation.

   + indicates Add Mode. For addition and subtraction, this setting allows the operator to enter numbers without a decimal and all entries and answers print with the decimal automatically printed in the second place. In multiplication and division, the Add Mode setting operates as the decimal setting 2.

   FL indicates Full Float. Results print with the true number of decimal places up to 7.

6. Non-Add Key - Prints entry but does not calculate.

7. Multiplication Key - Depress to enter figure in the keyboard as a multiplicand.

8. Clear Entry/Clear All Key - Single depression clears keyboard entry, overflow or error. A second depression will clear calculation registers and memories and print TT.

9. Register 2 (Logos 42 only) - See 10 for description.

10. Register 1 - Depress

    Plus Key to add
    Minus Key to subtract
    Subtotal Key to print contents of the register without clearing
    Total Key to print contents of the register and clear

11. Decimal Key - Depress to enter decimal point in numeric entries.

12. Negative Sign - Depress to enter a negative algebraic sign.

13. Equals Key - Depress to enter second figure in multiplication or division and to calculate and print the product or quotient.

14. Division Key - Depress to enter figure in the keyboard as a dividend.

15. Grand Total Key - To subtotal the grand total register, depress GT key followed by the S key, to total and clear the register depress the GT key followed by the T key.

16. Percent Key -

    In multiplication, press to enter figure in the keyboard as a percent and complete calculation of mark-up or discount and the net amount.

    In division, press to enter the figure in the keyboard as a percent and complete the division.

Item Count - Every accumulation (addition, subtraction or automatic accumulation of products and quotients) in register 1 or register 2 (Logos 42 only) and Grand Total Register is counted in the item counter corresponding to that register. The item count prints to the left of the tape following the subtotal or total. The Total Key prints the Item Count and clears the Item Count Register.

Constant - The last entry in multiplication, division and percentage operations can be used as a constant.

On/Off switch is located at the back of the calculator by the plug.

LESSON 1

ADDITION

TOUCH OPERATION

The touch method helps you to enter figures on the keyboard quickly and easily without looking at the keys.

In touch operation, the middle row of keys 4 5 6 is called the home row. To assist you in identifying the home row, these keys are indented.

By keeping your fingers poised above the home row at all times, each finger has very little movement to reach the upper row and the lower two rows of keys.

The hand should be kept relaxed and the fingers curled slightly. Figures are entered on the keyboard one after the other as they would be written down.

To enter 456 depress the '4' key with the index finger,
the '5' key with the middle finger,
the '6' key with the ring finger.
Then depress the Plus Key with the little finger. '456' will print on the tape with a '+' sign indicating it has been added in the register.

Similarly:
To enter 789 depress the '7' key with the index finger,
the '8' key with the middle finger,
the '9' key with the ring finger.
Then depress the Plus Key with the little finger. '789' will print on the tape with a '+' sign indicating it has been added in the register.

Taking a Total

To total the register, depress the Total Key (T) with the little finger. The total is printed on the tape followed by a 'T1' symbol.

```
  456.00 + 1
  789.00 + 1
1,245.00 T 1
```

Correction of Errors

To correct an error made in entering the digits on the keyboard, depress the Clear Entry/Clear All (CE/CA) Key. This will clear the wrong entry from the keyboard. If the figure has already printed, depress the Minus Key to correct an addition, or the Plus Key to correct a subtraction. This will remove the erroneous entry from the register. It is not necessary to re-enter the incorrect figure on the keyboard.

Practice Exercises

The exercises below include the 4, 5, 6, 7, 8 and 9 keys.

Before commencing, clear the calculator depressing the Clear Entry/ Clear All Key (CE/CA) twice.

Set the Decimal Control at '0'.

Use the correct touch fingering.

Do not look at the keyboard.

Check No. 1 against the answer given and complete Nos. 2 - 5.

Do not write the answers in this book.

After completing each set of exercises, compare your tape with the printed exercise in the book. If the entries agree, write down the answer and attach the tape.

1.	2.	3.	4.	5.
456	585	897	644	865
789	779	568	957	496
489	887	654	465	875
756	949	475	864	766
459	878	786	796	647
657	459	965	567	954
3,606				

Touch Operation - Lower Rows

To enter 123 depress the '1' key with the index finger,
the '2' key with the middle finger,
the '3' key with the ring finger.
Then depress the Plus Key with the little finger. Return fingers to the home row position.

Zero Keys

For faster entry of zeros, the Logos 40/42 has both a single zero and a double zero key. Enter single zeros with the index finger and double zeros with the middle finger.

Practice Exercises

Clear the calculator.

Set the Decimal Control at '0'.

6.	7.	8.	9.	10.
126	278	159	349	7080
345	431	458	761	1356
506	500	640	802	4678
180	808	709	624	1200
909	614	246	905	3605
348	730	100	320	6000
2414				

The Decimal Point

A number containing decimals is entered on the calculator in exactly the same way as it is written. Depress the Decimal Point Key with the ring finger.

In whole numbers it is not necessary to enter the decimal point or the zeros. They will print automatically.

The Decimal Control should be set to the maximum number of decimal places in the addends.

Example

$$12.35 + 2.3545 + 3 + 12.377 = 30.0815$$

Set the Decimal Control at '4'

Enter	Depress
	CE CA Twice
12.35	+
2.3545	+
3	+
12.377	+
	T

Tape

```
                    TT
          12.3500 +1
           2.3545 +1
           3.0000 +1
          12.3770 +1
          30.0815 T1
004
```

Practice Exercises

Clear the calculator.

Set the Decimal Control at the maximum number of decimal places in the addends.

11.	12.	13.	14.
26.565	213.405	6532	14.875
128.3	48.562	891.236	362.02
6.4532	195	24.5	1030.25
1158	12.1525	389.5061	519.425
19.72	.563	123.49	67.5
1339.0382			

Add-Mode

The Add-Mode setting on the Decimal Control allows you to add or subtract figures to two decimal places without entering the decimal point on the keyboard. This is particularly useful when adding dollars and cents. The decimal point prints automatically at two decimal places.

To enter whole dollar amounts in the Add-Mode setting, enter the whole number followed by two zeros.

Example

$12.34 + $56.78 = $69.12

Set the Decimal Control at '+'.

Enter	Depress	Tape
	CE CA Twice	TT 12.34 +1 56.78 +1 002 69.12 T1
1234	+	
5678	+	
	T	

Practice Exercises

Clear the calculator

Set the Decimal Control at '+'.

15.	16.	17.	18.	19.	20.
25.00	13.40	218.00	150.12	3856.05	135.00
6.45	48.56	165.30	456.45	1230.62	492.75
18.50	95.00	24.50	348.26	831.90	641.02
12.46	36.00	78.99	1040.50	620.00	1923.48
28.02	12.06	156.05	652.32	1504.99	299.95
15.40	35.20	24.00	861.12	239.40	100.23
105.83					

LESSON 2

SUBTRACTION

Positive Balance

When a figure has to be subtracted, depress the Minus Key after the figure has been entered on the keyboard.

Example

4.56 - 1.23 = 3.33

Set the Decimal Control at '+'.

Enter	Depress		Tape
	CE CA Twice		TT 4.56 +1 1.23 -1 3.33 T1
456	+	002	
123	−		
	T		

The symbols on the tape indicate which amount has been added and which subtracted.

Negative or Credit Balance

When the amounts to be subtracted exceed the added amounts, the result is a negative or credit balance.

The Logos 40/42 will print the difference with a minus sign indicating the difference is negative.

Example

1.23 - 4.56 = -3.33

Set the Decimal Control at '+'.

Enter	Depress	Tape
	CE CA Twice	
123	+	
456	–	
	T	

```
              TT
            1.23 +1
            4.56 -1
002        -3.33 T1
```

In this example the 3.33 is a credit balance and prints preceded by a minus sign.

Practice Exercises

Clear the calculator.

Set the Decimal Control at '+'.

Subtract the amounts preceded by a minus sign.

When entering the answers on the Answer Sheet, place a minus sign before the credit balance totals.

1.	2.	3.	4.	5.
65.43	116.45	-33.55	75.95	211.60
-102.06	-348.86	17.80	-22.40	-57.83
-36.63		15.30	-18.23	42.54
			150.00	-103.50

Item Counter

The Item Counter on the Logos 40/42 automatically provides the total number of items which have been added or subtracted in register 1, register 2 (Logos 42 only) or register 3 (grand total register).

Depression of the Sub-Total or Total Keys automatically prints the item count on the left side of the tape.

Example

12.56 + 13.25 - 6.50 + 39.46 = 58.77 (4 Items)

Set the Decimal Control at '+'.

Enter	Depress
	CE CA Twice
1256	+
1325	+
650	−
3946	+
	−
	T

Tape

```
                   T T
         12.56  +1
         13.25  +1
          6.50  -1
         39.45  +1
         58.77  T1
004
```

Practice Exercises

Clear the calculator.

Set the Decimal Control at '+'.

6.	7.	8.	9.	10.
56.47	19.21	23.50	-145.23	1002.50
234.19	185.00	8.61	99.99	2000.06
28.36	-23.60	36.20	17.08	1800.70
-82.75	-9.42	-.25	232.10	3600.02
100.90	15.34	.84	7.53	
326.42		-7.14	16.00	
663.59		12.43	8.50	
		-16.91	12.75	
			19.02	
			103.30	

Review Exercises

1.	2.	3.		
16.15	50.00	147.80	1008.99	100.01
22.36	216.50	600.03	-456.25	2000.50
.78	-91.26	519.24	2365.80	-916.42
-83.00	652.43	-92.15	.36	-791.56
57.80	200.00	-54.20	12.45	-6040.00

6.	7.	8.	9.	10.
356.25	219.50	-1500.00	112.77	56.05
1520.04	1000.01	2195.00	450.08	1123.97
-634.80	459.90	-536.40	1833.55	-678.33
135.50	-313.75	-959.80	-55.80	1642.40
2360.00	-597.00	21.45	1597.53	-22.11
-400.56	83.40	-1075.05	.45	942.63
23.42	.36	18.20	-32.98	-1001.11
18.95	.03	-1206.00	2587.13	454.87
-141.20	3642.80	452.30	.23	396.17
	130.02			-65.71

SUB-TOTAL AND REPEAT FUNCTION

Sub-Totals

Sub-totals are used when intermediate results are required without clearing the total amount from the register.

To print the sub-total on the tape, depress the Sub-Total Key with the little finger. The sub-total prints with a 'S' on the tape.

Subsequent depression of the Total Key prints the final total and clears the register.

Practice Exercises

Clear the calculator.

Set the Decimal Control at '+'.

Determine the sub-totals as indicated.

Depress the Total Key for final totals.

1.	2.	3.	4.
145.32	54.68	16.79	77.28
21.50	192.40	25.42	12.19
18.23	10.50	ST	6.45
6.57	ST	186.30	.22
191.62 ST	.65	200.00	ST
236.75	13.82	19.22	14.95
189.47	ST	ST	ST
68.43	124.00	41.32	469.80
686.27 ST	.96	1150.67	156.32
9.76	8.52	18.00	T
696.03 T	T	T	

Repeat Function in Addition and Subtraction

An entry can be repeated very easily and quickly on the Olivetti calculator. The repeated figures do not have to be entered on the keyboard more than once.

Simply enter the figure and depress the Plus or Minus Key as many times as you wish to add or subtract the figure. Entry of the next figure will clear the repeated number from the keyboard.

Example

1.25 + 1.25 + 1.25 = 3.75

Set the Decimal Control at '+'

Enter	Depress	Tape
	CE CA Twice	TT 1.25 +1 1.25 +1 1.25 +1 003 3.75 T1
125	+	
	+	
	+	
	T	

Practice Exercises

Clear the calculator

Set the Decimal Control at '+'.

Complete the exercises using the repeat function where possible.

5.	6.	7.	8.
15.37	135.42	13.40	1060.78
118.56	16.79	13.40	-146.32
118.56	16.79	176.15	-146.32
3.25	16.79	176.15	232.50
255.74	115.63	14.83	

LESSON 4

MULTIPLICATION

In multiplication: the first factor is the MULTIPLICAND
the second factor is the MULTIPLIER
the answer is the PRODUCT.

To calculate the product, enter the multiplicand and depress the Multiplication Key; enter the multiplier and depress the Equals Key.

The product prints automatically with a'T' symbol.

Example

9 X 18 = 162.00

Set the Decimal Control at '0'

Enter	Depress	Tape
	CE CA Twice	TT 9 × 18 = 162 T
9	×	
18	=	

Negative Multiplication

For negative multiplication use the Negative Sign Key.

Example

12 X -15 = -180.00

Set the Decimal Control at '0'.

Enter	Depress	Tape
	CE CA Twice	TT 12 × -15 = -180 T
12	×	
-15	=	

The negative product prints preceded by a minus sign.

Decimals

The number of decimal places in the multiplicand plus the number of decimal places in the multiplier equals the number of decimal places in the product.

On the Logos 40/42 the Decimal Control setting determines the number of decimal places that print in the product.

Round-Off

Round-off Control - This control is used in all operations, the three positions are:

0 - no round off
5 - the last printed digit is rounded up if the first digit after the decimal control setting is 5 or more.
9 - the last printed digit is rounded up when decimal digits exist beyond the decimal setting.

Example

(a) 12.35 X 6.25 = 77.1875
(b) 12.35 X 6.25 = 77.19

(a)
Set the Decimal Control at '4'

Enter	Depress	Tape
	CE CA Twice	TT 12.3500 × 6.2500 = 77.1875 T
12.35	×	
6.25	=	

(b)
Set the Decimal Control at '2'
Round-Off on 5

Enter	Depress	Tape
	CE CA Twice	TT 12.35 × 6.25 = 77.19 T
12.35	×	
6.25	=	

In (b) the product (77.19) is rounded up to two decimal places since the next digit after the decimal setting was '7'.

Practice Exercises

Clear the calculator.

Set the Decimal Control to give the complete answer - e.g. in the first exercise, set the Decimal Control at '4', in the second at '3', etc..

1. 17.54 X 9.23 =
2. 9.36 X 16.8 =
3. 24.8 X 2.42 =
4. 49.075 X 8.895 =
5. 56.99 X 18 =
6. 278.45 X 1.75 =

Repeat the same exercises with the Decimal Control set at '2' and the Round-Off switch on 5. Write both sets of answers on your answer sheet.

Chain Multiplication

Chain multiplication is the multiplication of three or more factors, for example in calculating volume. The calculation is performed in the same sequence as it is written.

Example

9.87 X 6.54 X 3.21 = 207.20

Set the Decimal Control at '2'

Round-Off on 5

(a)

Enter	Depress
	CE CA Twice
9.87	×
6.54	×
3.21	=

Tape

```
     TT
  9.87 ×
  6.54 ×
  3.21 =
207.20 T
```

Practice Exercises

Clear the calculator.
Set the Decimal Control at '2'

7. 16.25 X 42.40 X 12.60 =
8. 144.80 X 3.65 X 10.50 =
9. 365 X 7.25 X 2.50 =
10. 112.75 X 18.23 X 9.25 =
11. 4.65 X 15 X 6.75 =
12. 136.23 X 14.50 X 8.34 =

Review Exercises

1. 723.45
6.78
-14.89
ST
356.80
-120.25
ST
15.75
15.75
86.04
T

In exercises 2 to 5, calculate the answers rounded off to 2 decimal places.

2. 16.475 X 183.202 =
3. 156.325 X -14 =
4. 18.90 X 4.63 X 6.25 =

LESSON 5

MULTIPLICATION WITH ACCUMULATION OF PRODUCTS

Extending invoices is a very common business application. This involves multiplying 'quantity' times 'price' to calculate the extension. Multiplication with accumulation of products is used to arrive at the total of the extensions.

The Olivetti Logos 40/42 has a grand total register in which products can be accumulated automatically.

Depress the GT Key then the T Key to obtain the total of the extensions.

Example

12 items @ \$6.50 = \$ 78.00
23 items @ \$5.85 = 134.55
120 items @ \$2.99 = 358.80
\$ 571.35

Set the Decimal Control at '2'

Set the Accumulator at ACC

Enter	Depress
	CE CA Twice
12	×
6.5	=
23	×
5.85	=
120	×
2.99	=
	GT
	T

Tape

```
           TT
   12,00 ×
    6,50 =
   78,00 T◊

   23,00 ×
    5,85 =
  134,55 T◊

  120,00 ×
    2,99 =
  358,80 T◊

  571,35 T3
003
```

Negative Multiplication

When one of the products has to be deducted from the positive products, the amount is accumulated as a negative using the Negative Sign Key.

Practice Exercises

Clear the calculator

Calculate the accumulated totals rounded off to 2 decimal places.

1.

1200 X 5.50 =
1050 X 9.75 =
3600 X 2.60 =
2650 X 8.90 = ______

2.

23.5 X 15.36 =
120 X 4.87 =
85.4 X 1.49 =
-12 X 9.95 = ______

3.

262 X 14.40 =
133 X 25.00 =
75 X 8.62 =
1420 X 19.80 = ______

4.

84 X 6.50 =
122 X 15.45 =
90 X 12.20 =
327 X 4.62 = ______

TEST 1 - LESSONS 1 TO 5

Each test has two parts. Part I is written. Part II consists of problems to be solved on the calculator.

The answers for both parts should be recorded and handed in together with the tape for Part II.

Part I

1. What is the correct position for the fingers when operating the calculator by the touch method?

2. Which numeric keys are depressed using these fingers:

   Index finger?
   Middle finger?
   Ring finger?

3. What is the 'Sub-Total' key used for?

4. What is the 'Clear Entry' key used for?

5. How would you correct a wrong entry in addition after the figure has printed on the tape?

6. What is the purpose of the 'Add-Mode' setting on the 'Decimal Control'?

7. How can the operator recognize a credit balance?

8. What key is used to perform a negative multiplication?

9. To add an amount on the calculator three times, how many times does the figure have to be entered on the keyboard?

10. How can you check that you have computed a problem correctly without repeating the calculation?

Part II

1.

A.	B.	C.
495.30	114.25	1238.92
211.55	17.36	652.50
3.29	.50	2000.07
44.06	369.00	1146.75
106.00	86.80	770.08
536.02	1050.06	23.00
200.50	13.25	456.23
1354.33	.43	.35
3000.75	66.20	600.20
21.08	500.00	99.95

A.	B.	C.	D.
426.53	1850.64	754.20	206.52
-212.86	-965.78	-923.60	154.60
			-24.75
			340.20

3. Addition - mixed decimals:

(A) 5.25 + 14.275 + 14 =

(B) 156.235 + 59.5 + 4.56 =

(C) 17.19 + 3.432 + 19 =

(D) 345.6 + 25.725 + 8.0563 =

4.

A.	B.	C.
133.26	162.83	750.00
16.50	1000.02	405.60
215.45	453.60	405.60
ST	ST	ST
89.36	212.85	-121.20
121.02	-85.96	-596.40
121.02	ST	ST
ST	500.50	2050.32
300.84	-42.73	-16.75
23.12	T	T
T		

5. Calculate the answers rounded off to '2' decimal places

(A) 2.45 X 16 X 15 =

(B) 12.6 X 5.5 X 119 =

(C) 17.825 X 12.25 X 33.3 =

(D) 14 X 8.45 X 12.16=

6. 12 X 42.50 =
104 X 18.25 =
63 X 9.75 =
26 X 15.36 = ________ T

LESSON

DIVISION

In division:
the first factor is the DIVIDEND
the second factor is the DIVISOR
the answer is the QUOTIENT.

To calculate the quotient, enter the dividend and depress the Division Key; enter the divisor and depress the Equals Key.

The quotient prints automatically with a 'T'.

Example

123 ÷ 12 = 10.25

Set the Decimal Control at '2'.

Enter	Depress	Tape
	CE CA Twice	TT
123	÷	123.00 ÷
12	=	12.00 = 10.25 T

Decimals

Set the Decimal Control to the number of decimal places required in the quotient, irrespective of the number of decimal places in each factor.

The 'Round-Off' in division operates in exactly the same way as for multiplication.

Practice Exercises

Clear the calculator

Set the Decimal Control at '2'

Switch the Round-Off on 5.

1. 456.25 ÷ 13 =
2. 1789.5 ÷ 12.36 =
3. 652.896 ÷ 0.525 =
4. 79.3245 ÷ 24.9 =

5. 1002 ÷ 4.5 =

6. 96.5 ÷ 18 =

Division with Accumulation of Quotients

Quotients are accumulated in the Grand Total Register in the same way as products.

Example

$$\begin{array}{rl} 156 \div 14 & = 11.14 \\ 82 \div 19 & = 4.32 \\ 236 \div 7.5 & = \underline{31.47} \\ & 46.93 \end{array}$$

Set the Decimal Control at '2'

Switch the Round-Off on 5

Set the Accumulator at ACC

Enter	Depress
	CE CA Twice
156	÷
14	=
82	÷
19	=
236	÷
7.5	=
	GT
	T

Tape

```
                     TT

                156.00 ÷
                 14.00 =
                 11.14 ⁒

                 82.00 ÷
                 19.00 =
                  4.32 ⁒

                236.00 ÷
                  7.50 =
                 31.47 ⁒

                 46.93 T3
003
```

Practice Exercises

Clear the calculator.

Calculate the accumulated totals rounded off to 2 decimal places.

7.

200 ÷ 17.5 =

655 ÷ 12 =

1324 ÷ 9.25 =

____

8.

319.5 ÷ 2.36 =

52.6 ÷ 18 =

415.45 ÷ 21.2 =

____

9.

1200 ÷ 23 =

6005 ÷ 12.35 =

3020 ÷ 6.33 =

____

10.

16.75 ÷ 8.4 =

132.56 ÷ 11.23 =

99.05 ÷ 14.6 =

____

LESSON 7

MULTIPLICATION AND DIVISION WITH A CONSTANT FACTOR

The second factor in multiplication or division is automatically held as a constant.

The constant can be used in successive multiplications or divisions without re-entry. The entry of a new multiplier or divisor replaces the previous constant.

Example

(1)

6.5 X 25 = 162.50
3.25 X 25 = 81.25
2.15 X 25 = 53.75

Set the Decimal Control at '2'

Switch the Round-Off on 5

Enter	Depress
	CE/CA Twice
6.5	×
25	=
3.25	=
2.15	=

Tape

```
           TT

   6,50 ×
  25,00 =
 162,50 T

   3,25 ×
  25,00 =
  81,25 T

   2,15 ×
  25,00 =
  53,75 T
```

(2)

1523 ÷ 12 = 126.92
652 ÷ 12 = 54.33
2105 ÷ 12 = 175.42

Enter	Depress	Tape
	CE CA Twice	TT
1523	÷	1 523.00 ÷ 12.00 = 126.92 T
12	=	652.00 ÷ 12.00 = 54.33 T
652	=	2 105.00 ÷ 12.00 = 175.42 T
2105	=	

Practice Exercises

Clear the calculator.

Calculate the answers rounded off to 2 decimal places.

1.
13 X 16.4 =
13 X 5.75 =
13 X 23.25 =

2.
152 ÷ 16 =
1325 ÷ 16 =
81.52 ÷ 16 =

3.
2864 ÷ 15.5 =
3602.65 ÷ 15.5 =
148.9 ÷ 15.5 =

4.
25.4 X 82.55 =
25.4 X 136.23 =
25.4 X 18.5 =

Review Exercises

Calculate the answers rounded off to 2 decimal places.

1. 16 X 4.85 =
122 X 3.60 =
85 X 12.20 = ______
T

2. 144 X 2.65 X 18.7 =

3. 1456.78 ÷ 13.45 =

4. 64.23 ÷ 18 =

129.12 ÷ 18 =

95.95 ÷ 18 =

5. 25 X 14.56 =
25 X 36.90 =
25 X 2.32 = ________T

LESSON 8

TOTALS AND GRAND TOTALS

The Logos 40/42 has a Grand Total Register which automatically accumulates sums when the accumulator is set at ACC.

This is very useful in many business applications where it is necessary to take individual totals for different departments as well as a grand total. The figures for each department can be added and transferred automatically to the Grand Total Register when the T key is depressed.

To obtain the grand total, depress the GT Key followed by the T Key which prints the grand total and clears the Grand Total Register.

Example

Dept. 'A'	Cash Sales
Day 1	$185.42
Day 2	264.25
Day 3	159.88
Total - Dept 'A'	$609.55
Dept. 'B'	
Day 1	$ 96.50
Day 2	143.15
Day 3	175.40
Total - Dept 'B'	$415.05
Dept. 'C'	
Day 1	$ 54.20
Day 2	63.80
Day 3	136.75
Total - Dept 'C'	$254.75
Grand Total	$1,279.35

Set the Decimal Control at '+'

Enter	Depress
	CE CA Twice
18542	+
26425	+
15988	+
	T
9650	+
14315	+
17540	+
	T
5420	+

Tape

```
                              TT

                    185.42 +1
                    264,25 +1
                    159,88 ÷1
                    609,55 T◆1
003
                     96,50 +1
                    143.15 +1
                    175.40 +1
                    415,05 T◆1
003
                     54,20 +1
                     63,80 ÷1
                    136,75 +1
                    254,75 T◆1
003
                  1 279,35 T3
003
```

Enter	Depress
6380	+
13675	+
	T
	GT
	T

Practice Exercise

Clear the calculator

Set the Decimal Control at '+'

1. Monthly Sales Reports

Sales Representative #1	Sales
Week 1	$1285.87
Week 2	834.26
Week 3	1002.83
Week 4	705.50
	T

Sales Representative #2	
Week 1	$2602.75
Week 2	1623.00
Week 3	1392.80
Week 4	1155.35
	T

Sales Representative #3	
Week 1	$1650.10
Week 2	989.25
Week 3	636.82
Week 4	1052.90
	T
Grand Total	GT

Crossfooting

Involves adding columns of figures vertically and horizontally to check that the final totals agree.

For example, in a weekly sales analysis for various departments in a store, find the total sales for each day and the grand total for the week; then total the sales for each department and check that the grand totals agree.

Practice Exercises

2.

Day	Jewelry	Cosmetics	Stationery	Totals
1	$123.50	$ 98.90	$115.40	T
2	85.00	116.42	56.89	T
3	115.75	54.99	100.05	T
4	93.58	87.35	143.76	T
5	118.10	254.20	99.62	T
	T	T	T	GT

3.

Expense Report

Total the daily expenses and crossfoot.

Date	Travel	Hotel	Meals	Totals
June 2	$14.75	$22.50	$10.20	T
June 3	4.56	-	7.50	T
June 4	8.62	-	15.25	T
June 5	3.40	-	8.90	T
June 6	12.80	24.65	12.30	GT

LESSON 9

SEQUENTIAL CALCULATIONS

On the Olivetti Logos 40/42 sequential calculations are performed in a logical order as they are written, without re-entry of intermediate results.

Addition Followed By Multiplication

Example

(123 + 456 + 789) X 12.95 = 17,715.60

Set the Decimal Control at '2'

Switch the Round-Off on 5.

Enter	Depress
	CE CA Twice
123	+
456	+
789	+
	T
	×
12.95	=

Tape

```
                      TT

            123,00 +1
            456,00 +1
            789,00 +1
          1 368,00 T1
003
          1 368,00 ×
             12,95 =
         17 715,60 T
```

Practice Exercises

Calculate the answers rounded off to 2 decimal places.

1. (161 + 25 + 239) X 13.75 =
2. (15.25 + 112.50 + 76) X 12.40 =
3. (162 + 865 + 293) ÷ 123 =
4. (153.23 + 24.56 + 965.30) ÷ 24.50 =
5. (1500 + 6000 + 3200) X 17.89 =

Multiplication Followed By Division

Example

12 X 6 ÷ 3 = 24

Set the Decimal Control at '0'

Switch the Round-Off on 5

Enter	Depress	Tape
	CE CA Twice	TT
12	×	12 ×
6	÷	6 ÷
3	=	3 = 24 T

Practice Exercises

Calculate the answers rounded off to 2 decimal places.

6. 22.5 X 14.36 ÷ 16 =
7. 153.25 X 89.40 ÷ 18.15 =
8. 265 X 100.05 ÷ 12.25 =
9. 342.89 X 162.20 ÷ 9 =
10. 42.35 X 2050 ÷ 16.875 =

Division Followed By Multiplication

Also performed in the same sequence as it is written, without re-entry of intermediate results.

Example

112 ÷ 14 X 6 = 48

Set the Decimal Control at '0'

Switch the Round-Off on 5

Enter	Depress	Tape
	CE CA Twice	TT
112	÷	112 ÷ 14 × 6 = 48 T
14	×	
6	=	

Practice Exercises

Calculate the answers rounded off to 2 decimal places.

11. 4692 ÷ 23 X 19.25 =
12. 852 ÷ 21 X 56.75 =
13. 546.6 ÷ 15.5 X 83 =
14. 1032.78 ÷ 14.5 X 44 =
15. 1200 ÷ 3.45 X 19.99 =

Sequential Calculations Showing Intermediate Results

In some applications it may be necessary to have intermediate results printed out.

Example

24 X 18 = 432 ÷ 13 = 33.23

Set the Decimal Control at '2'

Switch the Round-Off on 5

Enter	Depress	Tape
	CE CA Twice	TT
24	×	24,00 ×
18	=	16,00 = 432,00 T
	÷	432,00 ÷
13	=	13,00 = 33,23 T

In the above example, the multiplication is completed in the normal way using the Multiplication and Equals Keys. Depression of the Division Key automatically qualified the product as the dividend for use in the subsequent division. Entry of the divisor followed by the Equals Key completes the calculation and prints the final answer.

Practice Exercises

Calculate the answers, including intermediate results, rounded off to 2 decimal places.

16. 352.40 X 262 = ÷ 14.5 =

17. 194.30 ÷ 17 = X 15.32 =

18. (283 X 12.5) = X 144 ÷ 13 =

19. 64.35 X 5.42 X 19.6 = ÷ .25 =

20. 1540 ÷ 19 = X 14.5 X 2.3 =

Review Exercises

Calculate the answers, including intermediate results, rounded off to 2 decimal places.

1. Find the Net Sales for each department, the Total Net Sales, then crossfoot.

Dept.	Gross Sales	Return Sales	Net Sales
A	$2165.34	$ 64.90	$
B	826.45	21.30	
C	1662.50	101.75	
D	993.36	39.80	
E	1823.10	92.50	
	T	T	T

2. 31.50
53.62
19.54
20.00
X 19.75 =

3. (1462 + 4315) X 12.56 ÷ 52 =

4. 123.25 X 82 = ÷ 14.19 =

5. 652 ÷ 13 = X 195.90 =

LESSON 10

DISCOUNTS

A discount is a deduction from an original amount, usually expressed as a percentage.

The Logos 40/42 has an automatic Percentage Key to calculate percentages and add the percent to the base amount. To compute discount enter the percent as a negative amount and depress the % key.

Example

An item has a list price of $48.50

There is a discount of 20%

To calculate the selling price, the amount of the discount (20% of $48.50) is deducted from the list price ($48.50).

Set the Decimal Control at '2'

Switch the Round-Off on 5

Enter	Depress	Tape
	CE/CA Twice	TT
48.5	×	48.50 ×
-20	%	-20.00 % -9.70 T 38.80 T

The amount of the discount and the total after discount prints automatically after the Percentage Key.

Practice Exercises

Calculate the answers rounded off to 2 decimal places.

1. $18.50 less 2% discount =
2. $89.95 less 15% discount =
3. $142.45 less 20% discount =
4. $24.30 less 33% discount =
5. $165.25 less 12.5% discount =

Chain Discounts

Some business applications require the deduction of several discounts from the gross amount. These are known as chain discounts. Each discount is deducted from the intermediate net amount.

Example

List price:	$56.85
Less 15% discount:	8.53
	$48.32
Less 5% discount:	2.42
	$45.90

Set the Decimal Control at '2'

Switch the Round-Off on 5

Enter	Depress
	CE CA Twice
56.85	×
-15	%
	×
-5	%

Tape

```
        TT

 56.85 ×
-15.00 %
 -8.53 T
 48.32 T

 48.32 ×
 -5.00 %
 -2.42 T
 45.90 T
```

The first discount is calculated in the same way as in the previous exercises, the Multiplication Key is then depressed to enter the new base.

Practice Exercises

Calculate the answers rounded off to 2 decimal places.

6. $ 115.46 less 15% less 2% =
7. $ 228.80 less 35% less 12.5% =
8. $ 86.92 less 17% less 4% =
9. $1657.23 less 20% less 5% less 2% =
10. $ 424.75 less 30% less 3% less 2.5% =

TEST 2 - LESSONS 6 to 10

Part I

1. Which factor in division is automatically held as a constant?
2. Describe the function of the 'Round Off' switch.
3. What does 'crossfooting' mean?
4. Which function keys are used to calculate 5% of 100?
5. What is a discount?
6. What makes the calculation of discounts very easy on the Logos 40/42?

Part II

Calculate all answers rounded off to 2 decimal places.

1. (A) 2360 ÷ 17 =
   (B) 5942 ÷ 4.5 =
   (C) 293.14 ÷ 12.36 =
   (D) 142.55 ÷ 19.3 =

2. Total the sales for each day and crossfoot:

Day	Dept. 'A	Dept. 'B'	Dept. 'C'	Totals
1	$158.23	$ 41.50	$227.93	T
2	84.56	111.73	668.24	T
3	100.01	92.92	203.03	T
4	75.83	143.34	167.55	T
5	177.87	156.44	133.78	T
	T	T	T	GT

3. (A) 14 X 8.25 =
   14 X 19.4 =
   14 X 136.75 =

   (B) .25 X 16.4 =
   .25 X115 =
   .25 X 8.63 =

   (C) 815 ÷ 6.2 =
   326 ÷ 6.2 =
   439 ÷ 6.2 =

(D) 1156.3 ÷ 3.675 =

2319.25 ÷ 3.675 =

852.725 ÷ 3.675 =

4. (A)

14.56
101.23
58.75
216.40
19.59
X 23.65 =

(B)

173.80
299.05
-73.49
21.50
-104.23
X 15.475 =

5. (A) 326.25 ÷ 11.77 X 4.42 =

(B) 792.40 ÷ 13 X 195.86 =

(C) 109.53 X 18.16 ÷ 10.49 =

(D) 122.8415 X 24.675 ÷ 52.425 =

6. Calculate the amount of discount only:

(A) $196.75 less 4% discount
(B) 52.40 less 8% discount
(C) 325.95 less 6.5% discount
(D) 516.00 less 22% discount

7. Calculate the net amount after deduction of discount:

(A) $841.26 less 15%
(B) 1342.50 less 12.5%
(C) 3149.99 less 18%
(D) 750.00 less 9.25%

8. Calculate the net amount after deduction of chain discounts:

(A) $1855.60 less 5%, less 2%
(B) 2162.34 less 15%, less 3%
(C) 920.10 less 12%, less 7.5%
(D) 3486.09 less 10%, less 6%

LESSON 11

MARKUPS

A markup is an addition to an original amount, usually expressed as a percentage.

As in discount calculations, the amount of the markup can be calculated very simply by using the automatic Percent Key on the Logos 40/42.

Example

An item has a list price of $156.25

There is a sales tax of 5%

To calculate the selling price, the amount of the sales tax (5% of $156.25) is added to the list price ($156.25).

Set the Decimal Control at '2'

Switch the Round-Off on 5

Enter	Depress	Tape
	CE CA Twice	TT
156.25	×	156.25 ×
5	%	5.00 % 7.81 T 164.06 T

The amount of the sales tax (markup) and total amount prints automatically after the depression of the Percent Key.

Practice Exercises

Calculate the answers rounded off to 2 decimal places.

1. $35.75 plus 5% tax =
2. $147.50 plus 37.5% profit =
3. $326.42 plus 12% surcharge =
4. $565.20 plus 8% imprort charge =
5. $262.45 plus 2.75% commission =

LESSON 12

INVOICING

Extending an invoice means multiplying the quantity for each item by the unit price. After each line has been extended in this way, the extensions must be added to find the total amount of the invoice.

If there is a discount to be deducted from this total, the amount of the discount and the net amount are calculated.

Any markups are added to obtain the final total of the invoice.

The Logos 40/42 with automatic accumulation of products and quotients, and automatic percentage facility, is an ideal calculator for invoicing applications.

The 'Non-Add' key enables you to record the invoice number on the tape for easy reference.

The tape provides a printed record of the invoice which can be used for checking.

Example

Invoice #1234

24 items @ $9.50 each = $228.00
163 items @ 1.75 each = 285.25
39 items @ 4.20 each = 163.80
$677.05
Less 15% discount = 101.56
$575.49
Plus 5% tax = 28.77
$604.26

Set the Decimal Control at '2'

Switch the Round-Off on 5

Set accumulator at ACC

Enter	Depress	
	CE CA Twice	
1234	#	
24	×	
9.5	=	
163	×	
1.75	=	
39	×	003
4.2	=	
	GT	
	T	
	×	
-15	%	
	×	
5	%	

Tape

```
            TT

1 234.00 #
   24.00 ×
    9.50 =
  228.00 T+

  163.00 ×
    1.75 =
  285.25 T+

   39.00 ×
    4.20 =
  163.80 T+

  677.05 T3

  677.05 ×
  -15.00 %
 -101.56 T+
  575.49 T

  575.49 ×
    5.00 %
   28.77 T+
  604.26 T
```

Practice Exercises

Calculate the Net Invoice Amounts rounded off to 2 decimal places.

1.

125 items @ $ 6.45 =
36 items @ 4.58 =
188 items @ 12.75 =
67 items @ 8.33 =

________ T

Less 15% discount =

________ T

2.

259 items @ $ 2.33 =
148 items @ 4.56 =
83 items @ 6.95 =
280 items @ 5.50 =

________ T

Less 12% discount =

________ T

Plus 4% tax =

________ T

Review Exercises

Calculate the answers rounded off to 2 decimal places.

1.

	Net Amount	Markup	Gross Amount
(A)	$115.85	12.5%	$
(B)	$158.20	33%	
(C)	$564.34	22.75%	
(D)	$ 99.95	16%	

LESSON 13

AVERAGE PRICE

To find the average price of the items on an invoice, divide the total of the extensions by the total quantity of items.

Example

24 lbs.	@	$ 6.85	per lb. =	$ 164.40
133 lbs.	@	$17.50	per lb. =	2,327.50
48 lbs.	@	$ 9.65	per lb. =	463.20
17 lbs.	@	$ 5.99	per lb. =	101.83
222 lbs.				$3,056.93

Average price per lb. = $13.77

Set the Decimal Control at '2'

Switch the Round Off on 5

Accumulator on ACC

Enter	Depress
	CE CA Twice
24	+
	×
6.85	=
133	+
	×
17.5	=
48	+

Tape

```
                TT

         24.00 +1
         24.00 ×
          6.85 =
        164.40 ↰

        133.00 +1
        133.00 ×
         17.50 =
      2 327.50 ↰

         48.00 +1
         48.00 ×
          9.65 =
        463.20 ↰

         17.00 +1
         17.00 ×
          5.99 =
        101.83 ↰

        222.00 T1
004
        222.00 ÷
      3 056.93 T3
004
      3 056.93 ÷
        222.00 =
         13.77 T
```

Enter	Depress
	×
9.65	=
17	+
	×
5.99	=
Accumulator off	
	T
	÷
	GT
	T
	=

Practice Exercises

Find the average price rounded off to 2 decimal places.

1.

3,245 items @ $1.10 =
825 items @ $2.30 =
1,050 items @ $2.85 =
650 items @ $3.45 =

2.

72 feet @ $5.95 per foot =
124 feet @ $6.75 per foot =
19 feet @ $4.62 per foot =
103 feet @ $8.50 per foot =

3.

32 lbs. @ $5.40 per lb. =
14 lbs. @ $8.65 per lb. =
75 lbs. @ $4.16 per lb. =
102 lbs. @ $2.10 per lb. =

LESSON 14

PERCENTAGE INCREASE

Almost all types of business statistically analyze their operations by comparing results of a month, quarter or year with another. They have to figure percentage-wise whether their operations increased, which will be outlined in this lesson, or decreased, outlined in Lesson 15.

Sometimes these statistical reports require only a percent of increase or decrease - other types of reports include the amount of increase as well as the percent of increase. The next example shows an application for percentage increase only.

Example

Sales-Oct.	Sales-Nov.	% Increase
$2,195	$3,462	57.72

Set the Decimal Control at '4'

Switch the Round Off on 5

Enter	Depress	Tape
	CE CA Twice	TT
3462	÷	3 462.0000 ÷ 2 195.0000 = 1.5772 T
2195	=	

Note: The answer is shown as 1.5772 or 157.72% which is an increase of 57.72%

Practice Exercises

Calculate the percentage increase only.

1.

	Sales-1974	Sales-1975	% Increase
(A)	$59,210	$65,350	
(B)	45,962	49,265	
(C)	87,590	100,094	
(D)	101,275	105,290	

Amount and Percentage Increase

The formula for finding the amount and the percentage of increase is:

$$\frac{\text{Current Amount} - \text{Previous Amount}}{\text{Previous Amount}}$$

Example

Sales-Oct.	Sales-Nov.	Amount	% Increase
$2,195	$3,462	$1,267	57.72

Set the Decimal Control at '4'

Switch the Round Off on 5

Enter	Depress	Tape
	CE CA Twice	
3462	+	
2195	−	
	T	
	÷	
	=	

```
                    TT

          3 462.0000 +1
          2 195.0000 -1
          1 267.0000 T1
002
          1 267.0000 ÷
          2 195.0000 =
              0.5772 T
```

Practice Exercises

Calculate the amount and percentage of increase.

2.

	Expenses-'74	Expenses-'75	Amount	% Increase
(A)	$10,950	$12,860		
(B)	$ 6,212	$ 7,954		
(C)	$ 8,565	$10,210		
(D)	$ 4,236	$ 5,500		

LESSON 15

PERCENTAGE DECREASE

Results naturally do not always show increases. Therefore it is necessary to learn how to calculate the amount of decrease and the percentage decrease.

To find the percentage decrease only, divide the 'Current Amount' by the 'Previous Amount'. The quotient is the complement of the percentage decrease. By subtracting the quotient from '1', the percentage decrease is calculated.

Example

Sales-June	Sales-July	% Decrease
$8,520	$6,983	18.04

Set the Decimal Control at '4'

Switch the Round Off on 5

Enter	Depress	Tape
	CE CA Twice	
6983	÷	TT
	=	6 983.0000 ÷ 8 520.0000 =
8520		0.8196 T
	−	0.8196 −1 1.0000 +1 0.1804 T1
1		002
	+	
	T	

Note: The answer is shown as .1804 which is a decrease of 18.04%.

Practice Exercises

Calculate the percentage decrease only.

1.

Sales-1974	Sales-1975	% Decrease
(A) $31,645	$23,560	
(B) $22,000	$19,456	
(C) $29,154	$25,632	
(D) $ 9,159	$ 8,238	

Amount and Percentage Decrease

The amount and percentage of decrease are calculated in exactly the same way as amount and percentage increase, using the formula:

$$\frac{\text{Current Amount} - \text{Previous Amount}}{\text{Previous Amount}}$$

Example

Sales-June	Sales-July	Amount	% Decrease
$8,520	$6,983	$1,537	18.04

Set the Decimal Control at '4'

Switch the Round Off on 5

Enter	Depress
	CE CA Twice
6983	+
8520	−
	T
	÷
	=

Tape

```
                      TT

            6 983.0000 +1
            8 520.0000 -1
           -1 537.0000 T1
002
           -1 537.0000 ÷
            8 520.0000 =
              -0.1804 T
```

Practice Exercises

Calculate the amount and percentage of decrease.

2.

	Expenses-'74	Expenses-'75	Amount	% Decrease
(A)	$11,050	$ 8,326		
(B)	$ 9,326	$ 6,250		
(C)	$13,250	$10,235		
(D)	$ 8,124	$ 7,560		

Percentage of Difference - Increase or Decrease

When finding the percentage difference only, you can tell whether it is an increase or a decrease by checking the answer. If the answer has a '1' before the decimal, it is an increase and the decimal portion is the percentage increase. If it is a decrease, the answer will be a decimal without a whole number. This decimal is the complement and must be subtracted from '1' to find the percentage decrease.

The answer in the second method, that of finding the amount of difference as well as the percentage, is much easier to read. The amount of difference and the percentage will print with a 'Minus' sign in front if it is a decrease. Not only is this method easier to read, it is the one most used in business. When interpreting a statistical analysis, it is much more meaningful to have the amount of difference as well as the percentage.

Practice Exercises

Calculate the amount of difference and percentage increase or decrease.

3.

Sales-Nov.	Sales-Dec.	Difference	% + or -
(A) $1,852	$2,020		
(B) $1,529	$1,205		
(C) $ 854	$ 950		
(D) $1,720	$2,154		

4.

1974	- Expenses -	1975	Difference	% + or -
$ 6,517	(A)	$ 8,225		
$ 8,876	(B)	$10,213		
$10,514	(C)	$ 7,912		
$ 9,165	(D)	$12,043		

TEST 3 - LESSONS 11 TO 15

Part I

1. What is meant by extending an invoice?
2. What feature of the Logos 40/42 do you use to find the total of the extensions?
3. How would you find the average price of the items on an invoice?
4. How would you calculate a percentage increase in sales in 1975 compared to 1974?
5. What formula is used to calculate both the amount and the percentage of increase or decrease?
6. How can you recognize an amount and percentage decrease on the tape?

Part II

1. Extend the invoice rounded off to 2 decimal places:

Invoice Number 56

565 items @ $ 8.30 =
213 items @ $ 4.15 =
99 items @ $ 2.80 =
145 items @ $10.10 =

______T

Less 5% discount =

______T

Less 2.5% discount =

______T

Plus 6% tax =

______T

2. Find the average price rounded off to 2 decimal places:

(A)

75 kilos @ $2.25 per kilo =
124 kilos @ $4.95 per kilo =
86 kilos @ $7.70 per kilo =
21 kilos @ $9.30 per kilo =

______

(B)

940 units @ $12.05 per unit =
682 units @ $11.25 per unit =
1,050 units @ $ 8.40 per unit =
316 units @ $ 9.20 per unit =

3. Find the percentage decrease:

October	November	% Decrease
(A) 3,163	2,935	
(B) 7,845	5,362	
(C) 2,504	1,918	
(D) 4,192	3,495	

4. Find the percentage increase:

November	December	% Increase
(A) 2,935	3,333	
(B) 5,362	6,190	
(C) 1,918	2,003	
(D) 3,495	4,395	

5. Find the amount and the percentage increase or decrease:

1974 Sales	1975 Sales	Amount	% + or -
(A) $19,705	$21,225		
(B) $13,850	$16,450		
(C) $ 9,750	$ 8,945		
(D) $17,194	$19,823		

6. Find the amount and the percentage increase or decrease:

Last Week	This Week	Amount	% + or -
(A) $11.23	$14.65		
(B) $23.77	$17.82		
(C) $ 9.11	$11.09		
(D) $33.78	$25.33		

PRORATION

Proration is the relationship of various amounts to the sum of the amounts. The result is usually expressed as a percentage.

To calculate a proration, divide each amount by the sum of the amounts. The sum of the percentage prorations should equal 100%.

Example

Dept.	Sales	% of Total
A	$ 9,356	29.19
B	6,462	20.16
C	10,256	32.00
D	5,978	18.65
	$32,052	100.00

Set the Decimal Control at '4'

Switch the Round Off on 5

Enter	Depress
	CE CA Twice
9356	+
6462	+
10256	+
5978	+
	T
Accumulator on ACC	
9356	÷

Tape

```
                          TT

            9 356,0000 +1
            6 462,0000 +1
           10 256,0000 +1
            5 978,0000 +1
           32 052,0000 T1
004
            9 356,0000 ÷
           32 052.0000 =
                0,2919 %

            6 462,0000 ÷
           32 052,0000 =
                0,2016 %

           10 256,0000 ÷
           32 052,0000 =
                0,3200 %

                5,0000 +1
            5 978,0000 +
           32 052.0000 =
                0,1865 %

                1,0000 T3
004
```

Enter	Depress
	=
6462	=
10256	=
5978	=
	GT
	T

Note: The answers, when multiplied by 100, are the prorated percentages.

Practice Exercises

Calculate the percentage prorations and check that the total is equal to 100%.

1.

Group	Sales	% of Total
A	$13,685	
B	9,153	
C	10,195	
D	7,648	
		100.00

2.

Dept.	Expenses	% of Total
A	$1,596.35	
B	3,432.75	
C	8,210.00	
D	5,645.90	
		100.00%

DISTRIBUTION

Distribution is the method of dividing an amount among a group in ratio. For example, a department store may want to allocate an overhead cost to several different departments, based upon the space occupied by each department.

To do this, the total amount to be allocated is divided by the total floor space, giving a ratio. This ratio is then multiplied by each department's floor space to calculate their proportion of the total overhead expense.

Example

Total Overhead Expense: $1,580.50
Total Floor Space: 580 square feet

Dept.	Floor Space	Overhead
1.	140	$381.50
2.	86	234.35
3.	230	626.75
4.	124	337.90
	580	$1,580.50

Set the Decimal Control at '4'

Switch the Round Off on 5

Enter	Depress
	CE CA Twice
1580.5	÷
580	=
Accumulator on ACC	
140	×
	=
86	=
230	=

Tape

```
                TT

 1 580,5000 ÷
   580,0000 =
     2,7250 T

   140,0000 ×
     2,7250 =
   381,5000 T+

    86,0000 ×
     2,7250 =
   234,3500 T+

   230,0000 ×
     2,7250 =
   626,7500 T+

   124,0000 ×
     2,7250 =
   337,9000 T+

 1 580,5000 T3
```

004

Enter	Depress
124	=
	GT
	T

Practice Exercises

1. Distribute a bonus of $1,000.00 among Sales Representatives according to their sales results.

Sales Rep.	Sales Results	Bonus
A	$14,665	
B	10,908	
C	31,079	
D	12,047	
		$1,000

2. Allocate an expense of $1,790.00 among 4 groups in proportion to their costs.

Group	Costs	Expense
A	$4,590.85	
B	2,150.00	
C	3,862.75	
D	1,426.30	
		$1,790

LESSON 18

INTEREST

Many businesses and individuals need to calculate the interest on a loan or a mortgage.

Interest Formula

Simple interest is calculated using the following formula:

$$I = \frac{P \times R \times T}{360 \text{ or } 365}$$

I = Interest
P = Principal
R = Rate of Interest
T = Time of Loan
360
or = Number of days in year, or basis used
365

The calculation of interest is very straightforward as the sequential calculation is performed without re-entry of intermediate results.

Example

Amount of Loan = $25,500
Rate of Interest = 11% annually
Time = 160 days on 360 day basis
Interest = $1,246.67

Set the Decimal Control at '2'

Switch the Round Off on 5

Enter	Depress
	CE CA Twice
25500	×
160	÷
360	×
.11	=

Tape

```
                TT
 25 500.00 ×
    160.00 ÷
    360.00 ×
      0.11 =
  1 246.67 T
```

Practice Exercises

Calculate the Amount of interest based on a 360 day year:

	Amount of Loan	Rate	Days	Amount of Interest
1.	$6,575.00	12.5%	190	
2.	$12,500.00	9.75%	310	
3.	$1,450.00	12%	90	
4.	$9,675.00	10.25%	245	
5.	$3,500.00	11.5%	150	

PAYROLL

Any business with one or more employees must calculate payroll and keep payroll records to comply with government regulations. Employees can be paid on an hourly, weekly, bi-weekly or monthly basis. In many payrolls overtime must be calculated as well as deductions for taxes, hospitalization plans, insurance, union dues, etc.

Example

Employee #46

Straight time - 40 hours @ $5.95		= $238.00
Overtime - 6 hours @ time and a half		= 53.55
Gross Pay:		$291.55
Less Deductions:		
Income Tax -	$47.80	
Insurance -	2.35	
Hospitalization Plan -	9.20	
Union Dues -	5.80	
Total Deductions -		65.15
Net Pay -		$226.40

Set the Decimal Control at '2'

Accumulator on ACC

Enter	Depress
	[CE CA] Twice
46	[#]
5.95	[×]
40	[=]
5.95	[×]
1.5	[×]

Tape

```
                TT

        46.00 #
         5.95 ×
        40.00 =
       238.00 ◇

         5.95 ×
         1.50 ×
         6.00 =
        53.55 ◇

       291.55 S3
002
        47.80 -1
         2.35 -1
         9.20 -1
         5.80 -1
       -65.15 ◇1
004
       226.40 T3
003
```

Enter	Depress
6	=
	GT
	S
47.8	−
2.35	−
9.2	−
5.8	−
	T
	GT
	T

Practice Exercises

Calculate the payroll rounded off to 2 decimal places:

1. Employee # 56

Straight time - 40 hours @ $4.95 per hour

Overtime - 8 hours @ time and a half

Deductions:

Income Tax -	$35.50
Insurance -	3.25
Hospitalization -	8.50
Union Dues -	6.10

2. Employee # 23

Straight time - 40 hours @ $5.85 per hour

Overtime - 16 hours @ time and a half

Deductions:

Income Tax -	$59.95
Insurance -	2.50
Hospitalization -	9.20
Credit Union -	20.00

Review Exercises

1. Calculate each company's sales as a percentage of the total sales:

Company	Sales	% of Total
A	$25,660	
B	40,952	
C	12,964	
D	22,169	

2. Calculate the interest on a 365 day basis:

	Amount	Rate	Days	Amount of Interest
(A)	$ 9,250	8%	325	
(B)	$22,900	6.5%	245	
(C)	$ 7,235	7.75%	118	
(D)	$15,156	4.25%	300	

LESSON 20

VOLUME

In certain types of business, such as the building trades, it is necessary to calculate volume. The volume in cubic feet or cubic yards may then be used to cost the job. The calculation of volume involves chain multiplication, which, as you have seen in Lesson 4, is very straightforward on the Logos 40/42.

Example

Calculate the volume in cubic yards and cost the excavation at $2.25 per cubic yard:

56.5 ft X 22.25 ft X 6.2 ft = 288.67 cubic yards

288.67 cubic yards @ $2.25 = $649.51

Note: There are 27 cubic feet in a cubic yard.

Set the Decimal Control at '2'

Switch the Round Off on 5

Enter	Depress
	CE CA Twice
56.5	×
22.25	×
6.2	÷
27	×
2.25	=

Tape

```
          TT

 56,50 ×
 22,25 ×
  6,20 ÷
 27,00 ×
  2.25 =
649.51 T
```

Practice Exercises

1. Calculate the volume in cubic feet rounded off to 2 decimal places:

   (A) 12.5 ft X 34.2 ft X 8.36 ft =

   (B) 16.25 ft X 23.5 ft X 9.2 ft =

   (C) 64.8 ft X 14.6 ft X 5.25 ft =

   (D) 15 ft X 32.4 ft X 7.6 ft =

2. Calculate the cost rounded off to 2 decimal places. Dimensions in feet:

(A) 36.5 X 15 X 5.25 @ $2.55 per cubic yard
(B) 19.3 X 27.5 X 11.6 @ $4.50 per cubic yard
(C) 22 X 8.75 X 28.5 @ $3.85 per cubic yard
(D) 33.6 X 11.75 X 12 @ 55¢ per cubic foot

FINAL TEST

Part I

1. Why are the numeral keys 4, 5 and 6 indented on the Logos 40/42?

2. In which of the following operations can the Item Counter be used?

   Multiplication
   Addition
   Division
   Subtraction
   Percentage

3. What is the purpose of the Non-Add function on the Logos 40/42?

4. With the Decimal Control in the Add-Mode position, which numeric keys are depressed to enter:

   (A) $8
   (B) $10.02
   (C) $.05

5. What is the name of the second factor in division?

6. How many times is it necessary to enter the original amount on the keyboard to calculate the following chain discount?

   $125.00 less 15%, less 10%, less 5%.

7. How is a percentage decrease calculated when comparing the figures for the current month with the figures for the previous month?

8. How is a percentage proration calculated for a series of amounts?

9. What one word is used to describe the allocation of an expense among several departments within a company?

10. What is the formula for calculating simple interest?

Part II

1. Invoicing:

Quantity	Unit Price	Amount
185	$ 4.52	$
64	8.90	
415	11.05	
		______ T

Less 12% discount ______

Less 3% discount ______

Plus 7% tax ______ T

2. Crossfooting:

	Dept. A	Dept. B	Dept. C	Total
Oct. 5	$17,184	$ 9,156	$ 2,697	$
Oct. 6	4,325	12,062	5,386	
Oct. 7	4,936	11,453	7,942	
Oct. 8	8,761	14,500	8,000	
Oct. 9	10,088	12,693	9,791	______
—	$	$	$	$

3. Amount and Percentage Difference:

Group	January	February	Difference	% + or -
A	$35,642	$32,159		
B	69,564	73,236		
C	96,000	100,099		
D	71,015	65,500		

4. Interest:

Loan Amt.	Rate	Days	Days in Year	Interest
$ 6,750	14.5%	185	360	$
11,300	15.25%		210	360
9,675	11%	300	360	
12,900	9.75%	275	365	
8.925	12.25%	333	365	

5. Sequential Calculations:

(A) (16.35 + 127.89 + 33.65) X 15.30 =
(B) 19.25 X 8.60 X 42 ÷ 13.35 =
(C) (1648 ÷ 19) - 32.33 =
(D) (118.5 + 236.2 + 87.65) ÷ 52 =

6. Proration:

Dept.	Sales	% of Total
W	$9,200	
X	7,300	
Y	5,925	
Z	4,326	
		100.00

7. Distribution:

Dept.	Floor Space	Overhead Expense
1A	186 sq. ft	
2A	434 sq. ft	
3A	589 sq. ft	
4A	341 sq. ft	
		$20,750.00

8. Payroll:

Employee Number 35

Straight time - 40 hours @ $6.25 =
Overtime - 5 hours @ time and a half =
Gross Pay -

Deductions:

Income Tax -	$59.40
Insurance -	5.50
Hospital Plan -	3.25
Union Dues -	1.75

Total Deductions -

Net Pay -

9. Volume:

	Dimensions in	Cost per Cubic Yard	Amount
(A)	15.5 X 12 X 3.65	$4.25	$
(B)	8.75 X 20.32 X 14	$3.30	
(C)	16.8 X 5.45 X 19	$6.50	
(D)	22.5 X 7.75 X 11.4	$2.33	

10. Average Cost:

214 items @ $3.21 =
118 items @ $5.48 =
236 items @ $ .97 =
419 items @ $1.56 =